Does the presence of water influence the magnitude of bird activity?

Abstract

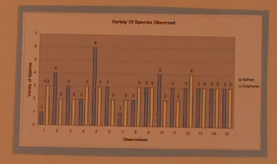
Over the course of twelve weeks, we conducted a research project to determine if birds are more attracted to a habitat with a greater presence of water. We predicted that the birds will appear more at the habitat with water. This experiment was conducted in two different backyard habitats, one with water present and one without. We observed the birds that came into our backyards for 10 minutes and recorded the bird species and the amount of visits made. Due to unforeseen variables, no definitive conclusion can be made, but there is a significant trend of greater bird activity in the habitat *with* water.

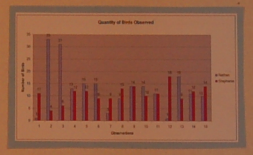
Hypothesis and Prediction

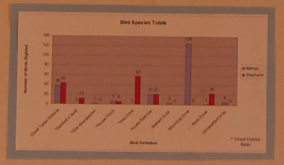
Our hypothesis is that the birds will appear more at the habitat that has water. Indicating to our bird observations within different habitats, we predicted that the birds will be more attracted to the environment with a greater presence of water.

Procedure

Each week, a variety of different species of birds were observed at two diverse backyard and habitats. One of the backyards had a pool, whereas the other backyard had no water source. The 10-minute bird count took place in our own backyards. First, we found a spot to observe the birds in our backyards. Then, we observed any activity for 10 minutes and recorded the birds that visited. We verified its name and the number of times visited with pictures and resources supplied by our teacher.

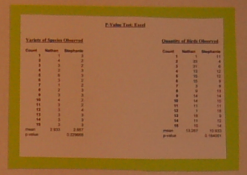


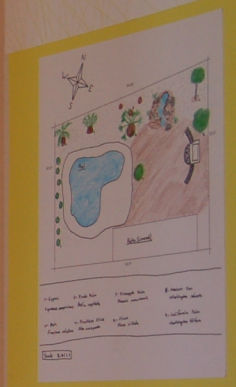




Conclusion

After analyzing the data collecting during the course of our experiment, we concluded that although there appears to be a trend in the presence of water and the amount of bird species and visitations, there is not significant proof to support our hypothesis. Two other hypotheses we had considered were (1) An increase in human activity would result in a decrease in bird activity and (2) A diverse variety of vegetation will result in a greater variety of bird species. However, we chose to address the water environment because that is more relevant to Arizona growth and how human expansion can affect bird populations. In order to analyze the data collected, we entered our data into an excel chart in order to conduct a T Test to find the p-value of our results; the p-value is the probability that the difference between two sets of numbers is due to random chance only. The acceptable range for variable chance that would support our hypotheses would be a p-value less than .05. But our p-values for variety and quantity of birds observed, the p-values were 0.238 and 0.181 respectively. Therefore there is no definitive evidence that supports our hypothesis. Although we attended to habitats with more water. However, Nathan's yard exhibited the greatest volume for species variety and quantity of birds observed. Overall, the more the birds categories of observations showed that Nathan's yard had a greater mean than Stephanie's yard. We also noticed that Stephanie's yard had more human habitat birds in her yard while Nathan observed birds that tend to reside in urban areas; it might be concluded that urban birds rely on humans for their water supply while desert birds have adapted enough to survive without human assistance. Although the random chance is above the acceptable range, we believe that a disruption in the backyard environment contributed to a significant increase in random chance. After the third bird count, Nathan's backyard underwent excavation and renovation while new additions were made to the backyard. An increase in human activity and the addition of new vegetation to the backyard may have affected bird visitations in the yard. For future research, we believe that the yards should not undergo any type of change in order for bird movements to be completely unaffected by any other factor except water.





SPECIES	# OBSERVED
WHITE WINGED DOVE	1
GRACKLE	1
MOURNING DOVE	78
HOUSE SPARROW	176
GILA WOODPECKER	79
MALLARD DUCK	1
UNIDENTIFIED BIRD	1
FINCH	6
	7